Center Innovation Fund: GSFC CIF

3D Printing Complex Unitized Instrument Optical Benches and Metering Structures

Completed Technology Project (2012 - 2013)

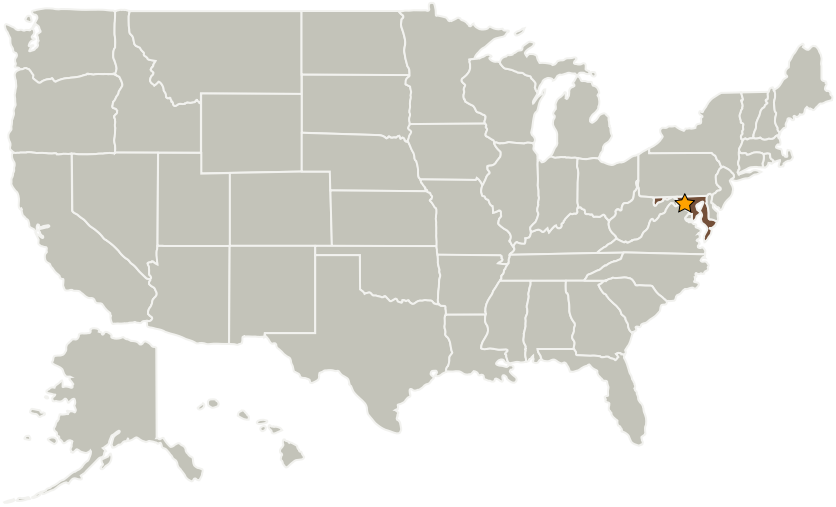
Project Introduction

The objective of this project is to determine the engineering techniques required to manufacture complex, thin-shelled instrument structures. These techniques will be validated through the end-to-end development of a functional imaging instrument.

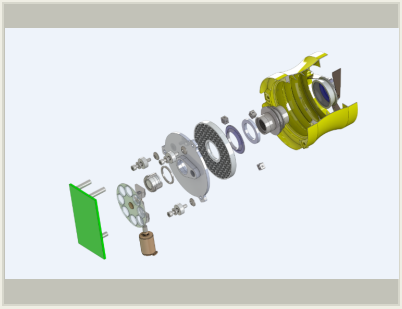
Anticipated Benefits

Instrument managers are notoriously conservative; Low TRL fabrication technologies are avoided due to cost unpredictability. Use of DMLS to fabricate entire unitary structures in a single build is low TRL but has the potential to drastically reduce mechanical segment costs through the reduction of component costs, and the reduction of integration and alignment time.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland



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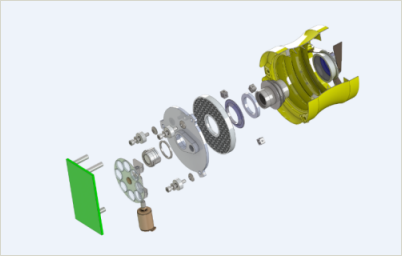
Primary U.S. Work Locations
Maryland

Images



3D Printing Complex Unitized Instrument Optical Benches and Metering Structures Project
3D Printing Complex Unitized Instrument Optical Benches and Metering Structures Project *(https://techport.nasa.gov/image/4086)*

Project Website:

http://sciences.gsfc.nasa.gov/sed/

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Center Innovation Fund: GSFC CIF

Project Management

Program Director:

Michael R Lapointe

Program Manager:

Peter M Hughes

Project Manager:

Theodore D Swanson

Principal Investigator:

Jason G Budinoff

Technology Areas

Primary:

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - TX12.4 Manufacturing
    - TX12.4.2 Intelligent Integrated Manufacturing